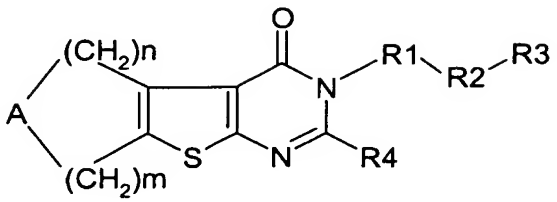
We claim:

1. A compound of the formula (I)



in which

A is O, S, SO, NR5 or CH_2;

R5 is H, C_{1-5}-alkyl, aryl, aralkyl, acyl or alkoxycarbonyl;

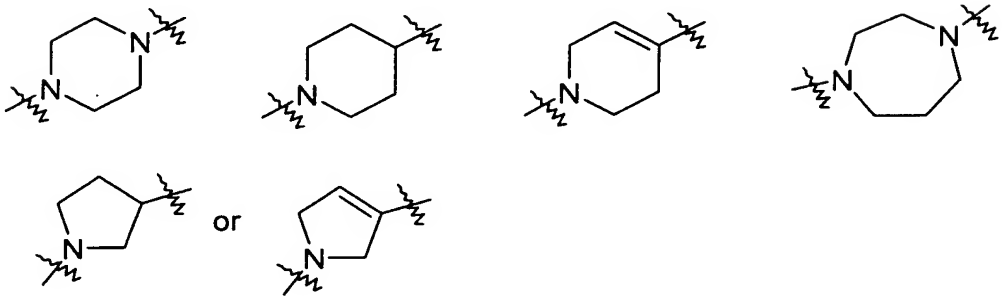
R4 is H or methyl;

n is 1 or 2;

m is 1 or 2;

R1 is C_{1-8}-alkylene;

R2 is a group of the formula



R3 is 5-membered heteroaryl which may be fused to an aryl or heteroaryl radical, where the heteroaryl and, optionally, the fused aryl or heteroaryl radical may have 1, 2 or 3 substituents selected independently of one another from C_{1-5}-alkyl, C_{1-5}-alkoxy, C_{1-5}-alkylthio, halogen, CN, halo-C_{1-5}-alkyl, halo-C_{1-5}-alkoxy, hydroxy, $-NH_2$, $-N(R6)_2$, -NH(R6), aryl, aryloxy,

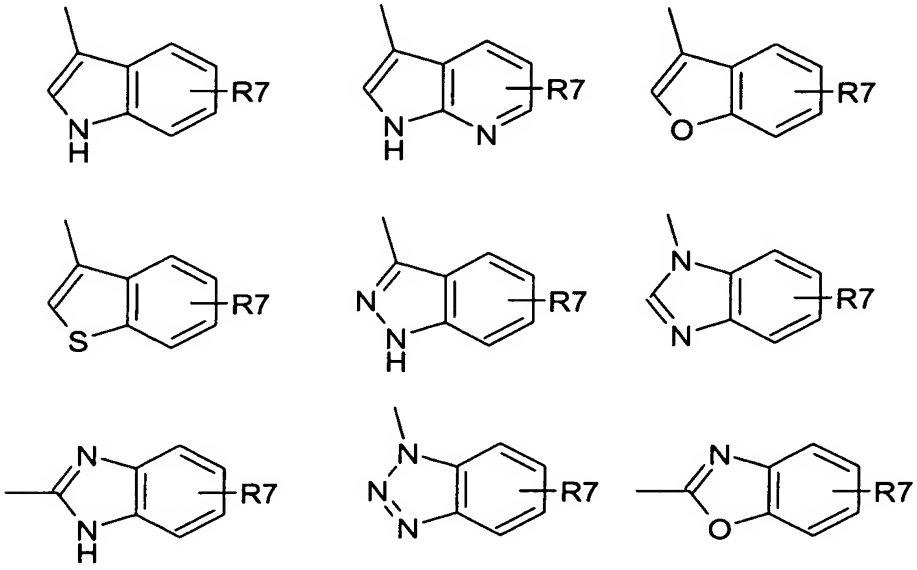
aralkyl, aralkyloxy and heteroaryl, where the substituents aryl, aryloxy, aralkyl, aralkyloxy and heteroaryl may have 1, 2 or 3 substituents selected independently of one another from C_{1-5}-alkyl, C_{1-5}-alkoxy, C_{1-5}-alkylthio, halogen, CN, halo-C_{1-5}-alkyl, halo-C_{1-5}-alkoxy, hydroxy, $-NH_2$, $-N(R6)_2$ and $-NH(R6)$; and the radicals

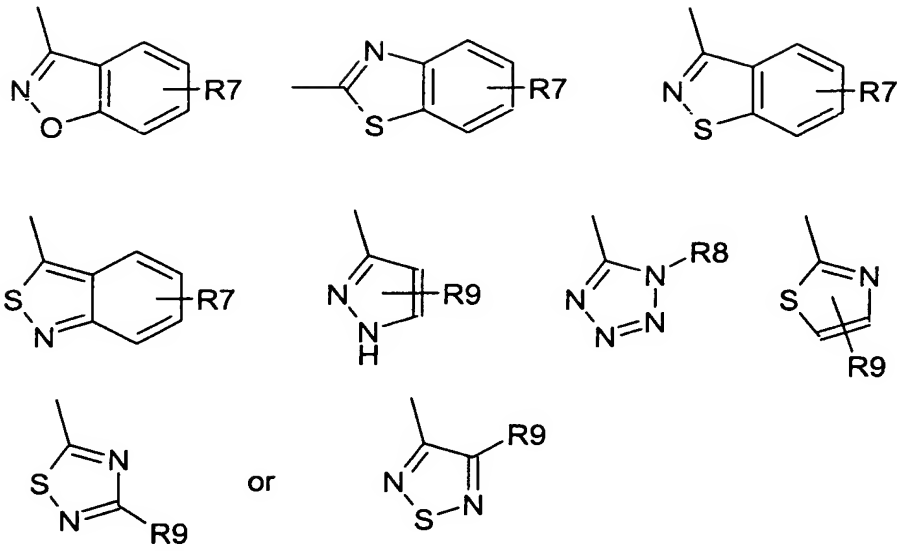
R6 are independently of one another C_{1-5}-alkyl,

and physiologically tolerated salts thereof.

2. The compound according to claim 1, wherein R3 is 1H-indol-3-yl, 1H-pyrrolo[2,3-b]pyridin-3-yl, 1-benzofuran-3-yl, 1-benzothien-3-yl, 1H-indazol-3-yl, 1H-benzimidazol-1-yl, 1H-benzimidazol-2-yl, 1H-benzotriazol-1-yl, 1,3-benzoxazol-2-yl, 1,2-benzisoxazol-3-yl, 1,3-benzothiazol-2-yl, 1,2-benzisothiazol-3-yl, pyrazol-3-yl, 1H-tetrazol-5-yl, 1,3-thiazol-2-yl or 1,2,4-thiadiazol-5-yl, which may have 1, 2 or 3 substituents selected independently of one another from C_{1-5}-alkyl, C_{1-5}-alkoxy, halogen, CN, SCH_3, trifluoromethyl, hydroxy, $-N(C_{1-5}\text{-alkyl})_2$, $-NH(C_{1-5}\text{-alkyl})$, $-NH_2$, aryl, aryloxy, aralkyl, aralkyloxy and heteroaryl, where the substituents aryl, aryloxy, aralkyl, aralkyloxy and heteroaryl may have 1, 2 or 3 substituents selected independently of one another from C_{1-5}-alkyl, C_{1-5}-alkoxy, halogen, CN, SCH_3, trifluoromethyl, hydroxy, $-N(C_{1-5}\text{-alkyl})_2$, $-NH(C_{1-5}\text{-alkyl})$ or $-NH_2$.

3. The compound according to claim 2, wherein R3 is a radical of the formula





in which

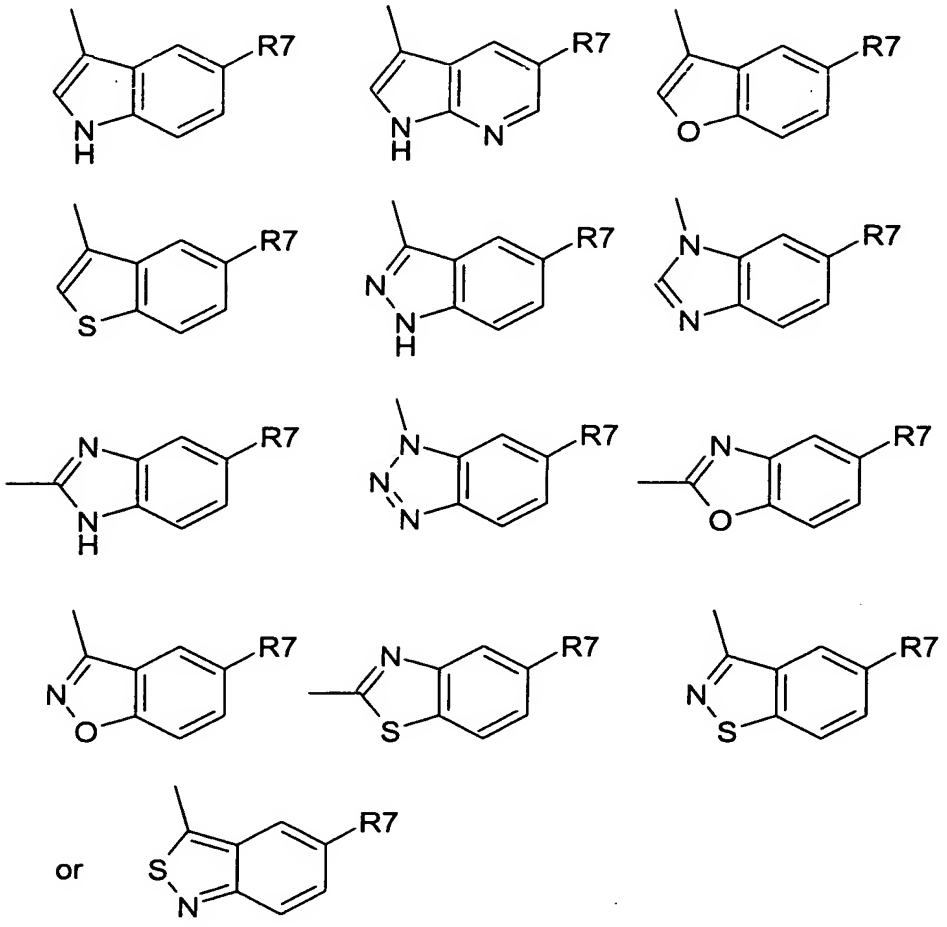
R7 is H, C_{1-5}-alkyl, C_{1-5}-alkoxy, C_{1-5}-alkylthio, halogen, CN, halo-C_{1-5}-alkyl, halo-C_{1-5}-alkoxy, hydroxy, $-NH_2$, $-N(R6)_2$ or -NH(R6); and

R8 is H, C_{1-5}-alkyl, aryl, aralkyl and heteroaryl;

R9 is H, C_{1-5}-alkyl, C_{1-5}-alkoxy, C_{1-5}-alkylthio, halogen, CN, halo-C_{1-5}-alkyl, halo-C_{1-5}-alkoxy, hydroxy, $-NH_2$, $-N(R6)_2$, -NH(R6), aryl, aryloxy, aralkyl, aralkyloxy or heteroaryl, where aryl, aryloxy, aralkyl, aralkyloxy or heteroaryl may have 1, 2 or 3 substituents selected independently of one another from C_{1-5}-alkyl, C_{1-5}-alkoxy, C_{1-5}-alkylthio, halogen, CN, halo-C_{1-5}-alkyl, halo-C_{1-5}-alkoxy, hydroxy, $-NH_2$, $-N(R6)_2$ and -NH(R6); and the radicals

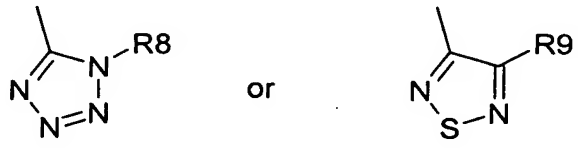
R6 have the meaning indicated in claim 1.

4. The compound according to claim 3, wherein R3 is a radical of the formula



in which R7 is as defined in claim 3.

5. The compound according to claim 3, wherein R3 is a radical of the formula



where R8 and R9 are as defined in claim 3.

6. The compound according to claim 4, wherein R7 is H, C_{1-5}-alkyl, preferably methyl, halogen, preferably chlorine, or halo-C_{1-5}-alkyl, preferably trifluoromethyl.

7. The compound according to claim 5, wherein R8 is C_{1-5}-alkyl, preferably methyl, ethyl or isopropyl or aryl, preferably phenyl.

8. The compound according to claim 5, wherein R9 is C_{1-5}-alkoxy, preferably methoxy, ethoxy or isopropoxy, aryl, preferably phenyl which may be substituted, e.g. by chlorine, or heteroaryl, e.g. 2-thienyl.

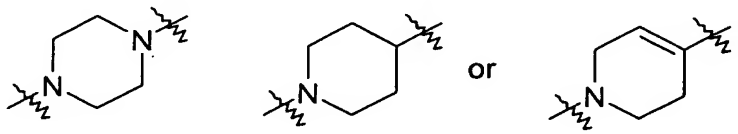
9. The compound according to any of claims 1 to 8, wherein A is O, S or NR5, where R5 is as defined in claim 1 and is preferably H or methyl.

10. The compound according to any of claims 1 to 8, wherein R4 is hydrogen.

11. The compound according to any of claims 1 to 8, wherein n is 2 and m is 1 or n is 1 and m is 2.

12. The compound according to any of claims 1 to 8, wherein R1 is eth-1,2-ylene, prop-1,3-ylene, prop-1,2-ylene, 2-methyl-prop-1,3-ylene, but-1,2-ylene or but-1,3-ylene.

13. The compound according to any of claims 1 to 8, wherein R2 is a group of the formula



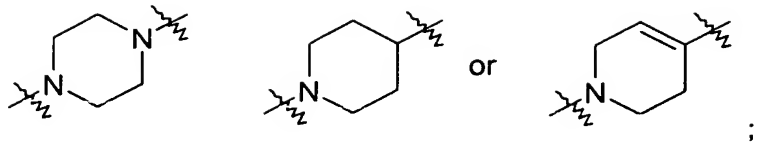
14. The compound according to any of claims 1 to 8, wherein

R4 is hydrogen;

n, m are 2, 1 or 1, 2;

R1 is eth-1,2-ylene, prop-1,3-ylene, prop-1,2-ylene, 2-methylprop-1,3-ylene, but-1,2-ylene or but-1,3-ylene;

R2 is a group of the formula

 or or ;

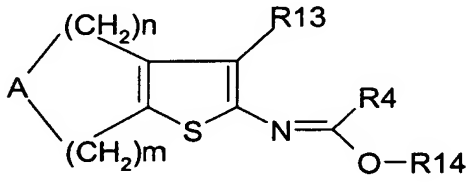
and

R3 is as defined in any of claims 1 to 13;

15. The compound according to claim 14, namely
3-substituted 5,6,7,8-tetrahydropyrido[4',3':4,5]thieno[2,3-d]pyrimidin-4(3H)-one derivatives;
3-substituted 3,5,6,8-tetrahydro-4H-pyrano[4',3':4,5]thieno[2,3-d]pyrimidin-4-one derivatives, or
3-substituted 3,5,6,8-tetrahydro-4H-thiopyrano[4',3';4,5]thieno[2,3-d]pyrimidin-4-one derivatives.

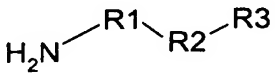
16. A process for preparing a compound according to any of claims 1 to 15

a) by reacting a compound of the formula (II)



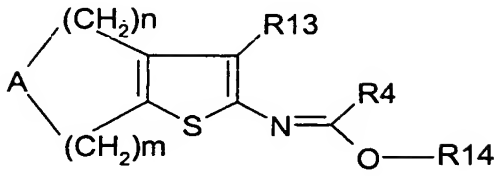
in which A, n, m and R4 have one of the meanings indicated in claim 1; R13 is CN or C_{1-3}-alkyl-O-CO-, and R14 is C_{1-3}-alkyl,

with a primary amine of the formula (III)



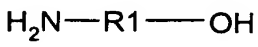
in which R1, R2 and R3 have one of the meanings indicated in claim 1, and isolating and, optionally, converting the resulting compound into a physiologically tolerated salt thereof, or

b1) by reacting a compound of the formula (II)



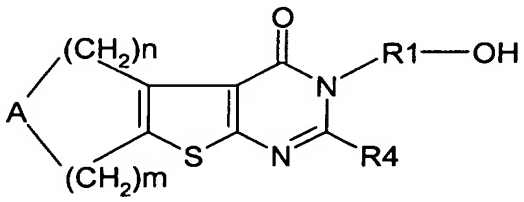
in which A, n, m and R4 have one of the meanings indicated in claim 1; R13 is CN or C_{1-3}-alkyl-O-CO-, and R14 is C_{1-3}-alkyl,

with a primary amine of the formula (IV)



in which R1 has one of the meanings indicated in claim 1;

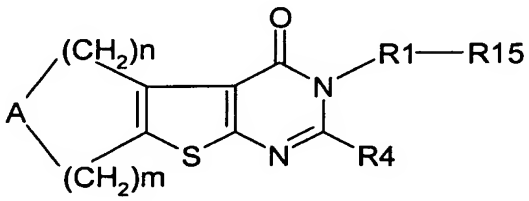
b2) reacting the resulting compound of the formula (V)



in which A, n, m, R4 and R1 have one of the meanings indicated in claim 1,

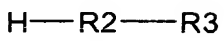
with a halogenating agent such as thionyl chloride; and

b3) reacting the resulting compound of the formula (VI)



in which A, n, m, R4 and R1 have one of the meanings indicated in claim 1, and R15 is halogen,

with a secondary amine of the formula (VII)



in which R2 and R3 have one of the meanings indicated in claim 1,

and isolating and, optionally, converting the resulting compound into a physiologically tolerated salt thereof.

17. The compound according to any of claims 1 to 15 for therapeutic use.

18. A pharmaceutical composition comprising at least one compound according to any of claims 1 to 15 and physiologically acceptable aids.

19. The use of a compound according to any of claims 1 to 15 for producing a composition for the treatment of disorders of the central nervous system.

20. The use according to claim 19, wherein the disorder of the central nervous system is a neuropsychiatric disorder, in particular a depression.